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Native Plants for Ornamental Planting.

WE spoke last week of the advisability of using indigenous plants for the adornment of small country places rather than the showy exotics and abnormal garden varieties which are generally preferred. We had in mind, especially, the resources of those beautiful thickly-wooded districts in northern New Jersey and southern New York where many residents of Manhattan have recently created summer homes for themselves. Let us now consider a little more carefully the supplies which Nature furnishes in these regions and the ways in which the owner of a small place would profit if, turning his back on the nurseryman and his seductive catalogues, he were wise enough to make use of them.

Where the forests have recently been cut away some of the largest and most vigorous trees have usually been retained—Sugar Maples, Hickories, Hemlocks, Beeches, Chestnuts and Oaks of several kinds; trees which had beaten their associates in the local struggle for life, and were therefore the finest that the given piece of ground supplied. But from about and beneath these their lesser companions have been removed; and then, where further planting was desired, trees from other regions or showy garden specimens have generally been introduced—Swiss and Austrian Pines, Blue Spruces from the Rocky Mountains, Lawson's Cypress, Beeches of weeping habit or with copper-colored foliage, Prunus Pissardii, cut-leaved Birches, striped Negundos and others. Little attempt has been made to group these introductions so that they will show at their best; and even if they were as agreeably arranged as possible, they would not harmonize with the native trees as well as would other species brought in from the native forest.

Here might be found in profusion, as has already been suggested, trees of various sizes and of the most diverse kinds of beauty—the Shad-bush and the Dogwood to bloom in early spring; the Yellow Birch, bright of bark and delicate of foliage; the Sassafras, with its peculiar leaves and varied tints of green; the White Pine, more delicate in its foliage and more picturesque in its habit than its Swiss and Austrian cousins; the Wild Cherry, with its profusion of fruit; the Hop Hornbeam, with its tassels of seed, and many more besides. All of these would be more sure than foreign trees or garden varieties to grow finely under local conditions, and much more sure to harmonize well with the larger Maples, Oaks and Chestnuts. And there are other reasons also why it would seem, an intelligent planter should prefer to introduce them in his ornamental grounds. He need not fear that if he confined himself to them his place would lack individuality—would look too much like a corner reserved from the original forest, too little like a creation of art. In the forest secondary trees do not get a chance to develop fully and finely. They grow as they can, in thin and straggling shapes, sometimes stunted of their height, or often drawn out by their search for light into tall stems merely topped by a narrow head of foliage. Of course, even thus they minister to beauty, bringing their several quotas to the compound charm of the forest. But it is only here and there in the thinned border of the woods, or surviving by chance along the brookside or the margin of a meadow, that they give a hint of the beauty they might attain under freer conditions, and this can hardly be completely shown until they are placed in isolation where the hand of man can tend them. The Dogwood of the forest spreads admirable sheets of bloom among the stems and branches of its crowding neighbors. But if planted on a lawn it reveals unsuspected beauties of shape and foliage. The Red Cedar, which may be shapeless in the woods, will assume a strict pyramidal habit of admirable outline if grown by itself, and few imported pyramidal trees can do better service where a somewhat formal feature is desired. The Yellow Birch cannot reveal its possibilities of charm unless it is seen by itself, the delicate leafage sweeping the grass and the brilliant bark gleaming through it. The young White Pine, most often ragged and scrawny as it grows amid other close-pressing trees, is a compact, symmetrical mass of feathery needles when it has a better chance; and its progress from this shrub-like phase to the bold picturesqueness of its later years is one of the most interesting things in nature for the observant eye to watch. And so it is with every native tree: give it a better chance than the struggle for life of the forest affords and it will surprise us with unsuspected charms. It ought to be more interesting to an intelligent planter thus to develop the beauty of indigenous trees which will quickly and gratefully reward his care, than to cultivate exotics which are less well suited, perhaps, to local conditions, and with which he can hardly hope to achieve the same success that has been achieved by the practiced nurseryman from whom he has purchased them. To feel that he is completing Nature's intentions in developing the plants with which she has supplied his locality more perfectly than she is able to do, ought to satisfy him better than the effort to grow plants which she has meant should grow under different conditions, and to combine things which she has kept far apart. And, we repeat, the variety which he desires in his grounds may thus be amply secured.

The current preference for exotics and garden varieties seems even less comprehensible in regard to shrubs than in regard to trees. The Golden Elders, the piebald Retinosporas, stiff Altheas and coarse panicled Hydrangeas, which we see repeated in such wearisome profusion, are really less beautiful than our native shrubs—the Mountain Laurel, the Viburnums, the Sumachs, the Elders with black berries or red, the Spiræas, the New Jersey Tea, and a score of their congeners. And with vines and creepers the case may be even more strongly put. The region which we have now in mind supplies some of the most beautiful creeping and twining plants in the world; several kinds of Grape, one with broad, slightly lobed leaves and another with darker leaves deeply lobed into an almost architectural form; the Virginia Creeper, the Bittersweet, and the Virgin's Bower, a wealth of starry white blossoms in August and later loaded with long tufted seeds. Yet place after place in this region may be examined and no creeper be

seen, either on house or fence, except Honeysuckles (usually of the showy golden-leaved variety) and the Japanese Ivy of which we almost grew tired within the city's limits before the summer had really begun. Would not variety as well as beauty be better served if our native wealth in shrubs and vines as well as trees was utilized instead of the products of the commercial gardener?

Certainly in one important direction the interests of variety would be far better served, as regards both trees and shrubs, were native products more appreciated. The excuse that is offered for the employment of exotics and garden varieties is often that diversity in color is attractive. Therefore, Nature's harmony of summer greens is disturbed by masses of red and yellow and blotched-leaved plants. But while confusion is thus secured, real variety is not. Such bright-leaved plants remain the same from spring's beginning until autumn's end, and their very brightness, making them more conspicuous, only makes them seem more and more monotonous as the weeks go by. The real way to secure variety is to obtain plants which from week to week or month to month will change. Those which bear beautiful blossoms are to be preferred to those which have brilliant leaves; and if they are discreetly selected the succession of bloom may be kept up all summer. And then, if American plants are relied upon, autumn will bring a magnificent diversity of its own. What bright hued plant can be named, as a factor toward variety in the pleasure-ground, which compares with the Dogwood—covered in spring with sheets of white blossoms, showing a beautiful spread of peculiar green in midsummer, in autumn turning to a vivid crimson, and keeping late into the winter its burden of scarlet berries? What foreign shrubs can give us the changeful effects which may be secured by a well-arranged bed of Sumachs of different kinds—showing diverse tints of green, ornamented in summer with bold panicles which are pale green, rosy, bright red, or deep brown in color, and in autumn becoming a glowing mass of ruddy foliage? What exotic has leaves more beautiful than the shining Tupelo's, or turns suddenly like the Tupelo to a gorgeous red, which lasts for many days or weeks? What task presented by any collection of alien trees and shrubs could be as interesting to the intelligent planter as the task of so adorning his grounds with American trees and shrubs that, after their varied kinds of spring and summer beauty have been enjoyed, a new and wonderful autumn symphony will develop, shading from the pale yellow of the Beech to the vivid yellows and reds of the different Maples, the scarlet of certain Oaks, and the dusky purple of the Ash, and emphasized by the still more brilliant reds of Tupelos, Sumachs, and Dogwoods? The very mention of a place adequately treated with this aim in view makes our customary arrays of yellow and striped and blotched and brownish garden plants—monotonously alike from year's end to end—seem by comparison, unintelligent, inartistic, and tiresome.

The Wayland Group of Plums.

IN an article in last week's issue of Garden and Forest I called attention to the continuity of the series of intergradients between the Americana and the Chicasaw Plums and said that the series might be roughly marked by three types, the Miner, the Wild Goose and the Schley or Clifford. It was also noted that another group, standing somewhat aside from this series, might, for the present at least, be regarded as belonging among the Hortulana Plums, and that this group is comparatively distinct and very interesting. This I have designated as the Wayland group * from one of its best types, the Wayland Plum. Golden Beauty is also a good type of this group, and is well known in the southern states, though not northward. Moreman is the commonest variety of the group in the northern states, but is not well known in the south, and is not quite so good an exponent of the characters which mark this group. After considerable deliberation I think that Wayland is the best and most convenient group name for these varieties.

Of course, this group is not free from puzzling forms which show equivocal characters, apparently borrowed from the Chicasaws, Americanas and other groups; but on the whole it is much better marked than the Miner or Wild Goose sections, which have for several years been thought worthy of recognition. The varieties are characterized by straight, slender, dark-colored twigs, very large luxuriant foliage, broad leaves, which are often pubescent on the larger veins beneath, and which have from two to six glands on the petioles; axillary buds often triple; blossoms and fruit very late, mostly after Miner; fruit spherical, or nearly so, red or yellow, with many small dots, thin-skinned and of fine quality.

Several varieties of this group are already widely distributed in cultivation. Others of considerable promise have been recently introduced. Those which I have had the opportunity to examine, and which seem to belong with Wayland rather than in any other group, are Columbia, Crimson Beauty, Cumberland, Garfield, Golden Beauty, Kanawha, Leptune, Missouri Apricot, Moreman, Nimon, Reed, Sucker State, Wayland and Worldbeater. Mr. T. V. Munson, in correspondence, mentions another variety, Erby's September, growing in his grounds, which apparently belongs with those named here.

Of these varieties, Cumberland, Golden Beauty, Kanawha, Leptune, Reed and Wayland best show the distinctive foliage and tree characters which separate them from adjoining types. These are all good Plums from the planter's standpoint. All of them are very ornamental. Reed is one of the most beautiful trees of its size I ever saw.

These varieties have usually been put in the Wild Goose class, though Bailey, who has done most of the work in the classification of native Plums, puts Leptune, one of the best marked varieties, into the Miner group, and President Berckmans, who introduced Kanawha, says "this is beyond question a form of Prunus Americana." The whole group has also been roughly referred to P. glandulosa, Torr. & Gray, but this is evidently a mistake. Mr. T. V. Munson has given this question serious study, and has concluded that all these varieties are derived from P. rivularis, Scheele. This is a somewhat startling decision, and extremely important if true. The facts are, however, first, that we are yet too poorly acquainted with this species to make critical comparisons; second, that Scheele's description, made at second hand from Lindheimer's specimens, is not sufficiently precise to preclude mistakes; third, that the description,* what there is of it, fails, in important particulars, to fit the varieties in question; and fourth, that many of these varieties have originated in localities where it is almost impossible to believe that P. rivularis could be growing.

To particularize further, the National Herbarium † contains only the following specimens: Those of Lindheimer, collected in western Texas in 1846; one by Hall, from Dallas; two by Wolf, collected in Illinois in 1875 and very possibly cultivated specimens; and one of doubtful authenticity by Thomas Bassler, from Manhattan, Kansas. Other herbaria seem to have no better representation of the species, and this could hardly be the case were it so common

* Vermont Experiment Station, 10th Report, p. 103.

* Since this description is inaccessible to many students, it will be well to transcribe it here:

Prunus rivularis, Scheele, *Linnæa*, 21, 594. Frutex 3-6 pedalis; rami angulati glabri nitidi cinerei verruculosi, verrucæ parvæ confertæ. Petioli glandulosi canaliculati puberuli. Folia ovate-oblonga acuminata inæqualiter serrulata, basi glandulosa, subtus sporæ pubescentia, supra glabra, serraturæ callosæ confertæ. Umbellæ laterales sessiles, subbifloræ. Squamæ gemmæ floriferæ aphyllæ. Pedunculi glabri elongati subglandulosi, petiolum æquantes. Flores . . . Drupa rubra globosa glabra nitida acida.

"Gesellschaftlich an Bachrändern, seltener aber jedesmal in Menge zusammerstehenden auf Hügeln. Strauch 3-6' hoch, Frucht kügelig, hell-roth, angenehm säuerlich, von der Grösse einer Kirsche biszu der einer Mirabelle, ½-1" dick. Die Tawakong-Indianer sollen die Frucht, mit honig gekocht, sehr lieben. Die Texaner nennen sie 'Tawakong plum'" Lindheimer.

Gehört zur Rotte Eucerasus, Torr. & Gray.

Seltener stehen die Blumen einzeln.

† The specimens in the National Herbarium were kindly examined for me by Mr. Lyster H. Dewey.

and so widely distributed as to furnish the well-known cultivated varieties mentioned above. The varieties in question differ from Scheele's description in having single straight trunks, in being from fifteen to twenty feet high, instead of from three to six feet, and in having often three flowers to each fascicle, instead of one or two. The distribution of the species is given by Coulter* as "not uncommon on the Colorado and its tributaries, and extending to the upper Guadalupe and the Leona," and the specimens referred to above give no important evidence of its occurrence this side of western Texas. In comparison with this distribution the origin of the cultivated varieties should be carefully considered. As far as known their sources are as follows: Cumberland, Tennessee; Garfield, Ohio; Golden Beauty, south-west Texas; Kanawha, Fairview, Kentucky; Leptune, Arkansas; Missouri Apricot, Missouri; Moreman, Kentucky; Sucker State, Illinois; Wayland, Cadiz, Kentucky.

The evidence of this list is quite contrary to the supposition of a Prunus rivularis parentage for the varieties named; but, on the other hand, must be regarded as decidedly favorable to their classification in the pseudo-species, P. hortulana.

It seems to me important that this group of Plums should be understood separately, and that its relationships should be worked out as speedily and as accurately as possible; and while the evidence here reviewed leads me to reject the hypothesis of their derivation from Prunus rivularis, that species seems to be a promising one, and we would do well not to lose sight of it too soon.

University of Vermont. *F. A. Waugh.*

What Can be Done in Nine Years.

MANY persons think it is useless to plant trees because so many years will be required for their growth that the planter will not live to sit under their shade, and can never enjoy the fruit of his labors. This is clearly a mistake. From personal experience on a most unpromising piece of ground, I am prepared to say that three years' work will produce an encouraging effect almost anywhere if one goes about it in the right way; that in five years trees will be well enough along to be ornamental, while in ten years one may have a really beautiful place if it is properly planted to begin with.

An account of our inexperienced beginnings at Overlea was published in GARDEN AND FOREST six years ago (see vol. iv.), and to those who were interested in that story this account will not be without a certain value, as it will show how a little place can be rescued from total neglect and desolation and turned from an eyesore into an ornament of the village in a few short years. One decade counts for little in a life, and it must be remembered that not half of that time was required here to produce valuable and effective results, even with imperfect knowledge and very moderate expense. We began on our abandoned farm by planting a screen of Willows along the straight street which separates it from the salt marsh of which it was originally a part. These Willows, it may be remembered, were driven down as stakes, without a leaf or branch, along the boundary, and set as closely as possible in a row. Some of these have now reached the height of forty-five feet, and a large one within the line, in a particularly propitious situation where it had room to spread, left, when it was felled last year, a butt considerably over two feet in diameter. All have not grown equally fast, for some of them had to be moved, and others, being set along the street made by filling in across the salt-marshes, had a very stony foundation as well as an occasional dose of salt-water from a high tide, and grew feebly. These, however, exist just where we desire to have them as a hedge, and their tops are kept down that we may view the meadow on the other side, so that their lack of vigor is an advantage. By vigorous pruning they have assumed a round bushy form, thick at the base, and the road outside is completely hidden from sight.

A White Willow, already of good size when set out in 1888 near the house for immediate shade, has spread widely from having been polled in the beginning, but is ten feet shorter than the trees which have grown from stakes. A Golden Osier carried in my hand from a neighbor's house in 1889, and transplanted twice, now measures thirty-nine feet in height, having run up a long leader, always much bent over by the prevailing south-west winds of this region. Both these trees are set upon a sandy knoll with no moisture, whereas the fine specimen which was cut down had its roots in the fresh meadow, where it was always well watered and supplied with good soil.

The Willow at the south-west corner of the house we always intended to remove after a few years, to leave room for a Maple beyond it. But though the branches of the two now touch, it is so pleasant and important a neighbor that we have not yet found resolution to take it away. The fact is that the planting of nurses for trees results in subsequent pangs, for by the time the nurse ought to come down it has grown dear and necessary, and though it is injuring its charge, the charge is still incompetent to take its place. Then one is sure to weakly succumb and temporize after our feeble human fashion, preferring, as we do, present comfort to future good. Nobody but the born philosopher has the courage "de se tourmenter pendant la vie pour qu'on parle de lui quand il soit mort." Strive as we may, our philosophy is ever tempered with weak-hearted relenting toward those branches which have first shaded our bare walls, even though we have sense enough to be ashamed of it. To cut down a tree and sit in the sun for two or three years until another grows large enough to take its place, is more than we can do yet, but no doubt we shall come to it.

Next to the Willows the Maples are our tallest trees, and the crowning glory of the front of the grounds is a symmetrical White Cut-leaved Maple, which, but an eight-foot feather-duster in the summer of 1888, is now more than thirty-five feet high, with a spread of nearly thirty feet. This tree grows on the gravelly knoll on which the house stands, its only advantage being that it had a wide, deep hole dug for it, into which seven loads of loam were dumped when it was planted. Such a tree set out in congenial soil would probably be much larger, but my object is not to show what can be done with favorable conditions, but with those which at the outset seemed most unpromising. The result goes to prove that if a good bed is made for a tree at the start, and plenty of water and top-dressing are supplied for two or three years, it will afterward be in condition to get its own living, even from such poor pickings as a gravel bank affords; and that no one should hesitate on account of seemingly impossible soil to give a tree a chance by a slight expenditure in the first place, to show its powers of growth and endurance. The White Maple flourishes here, in glacial débris, with a number of other trees within thirty feet of it, and is quick of growth and particularly agreeable in outline. Its lower branches have a graceful downward sweep to the ground, with the tips mounting up again in a curve; the foliage is a cheerful light green of very open and airy character, so that the sunlight is not excluded from the turf below. The one I speak of was eighteen inches in circumference two feet from the ground at the time it was transplanted, and now measures three feet around in the same place.

Two good-sized Norway Maples, transplanted in January, 1888, are now as tall as the ridge-pole of the house. They were too severely cut back at first, our knowledge of a tree's necessities being at that time very limited, and consequently they made too many branches and have to be thinned out every June, the best month for pruning Maples. The largest of these trees is about three feet in circumference at the base, with a shock head, very thick and round, but not particularly graceful, and is about twenty-five feet high. Its neighbor is much more beautiful in form

* *Botany of Western Texas, Coll.; U. S. Nat. Herb.*, vol. ii., p. 102.

and is a little taller, while a third of the same species planted sixteen months later, when much smaller than the others, overtops them both, though it has not so great lateral extent. This goes to prove what the authorities state, that in the long run small transplanted trees outgrow large ones. The offset to this fact is that the latter give you more shade immediately, while you are waiting for their younger neighbors to attain their height.

So far as our observation goes the larger the tree transplanted the more stationary it remains, if it remains at all, which is most unlikely. A few years ago a man from the west came to this town and offered for a large price, ranging from forty to a hundred dollars each, to move trees of any size and warrant them to live. A machine was used to lift them after the roots had been cut off too near the trunk. The great Oaks and Elms moved for some of our neighbors, while ornamental for a couple of years then began to die. In a few instances, where the trees were planted in excellent soil and had continuous care in the way of watering and top-dressing, the experiment was justified, though these have merely held their own, and most of the trees were lost.

We planted a number of acorns of English Oaks eight years ago, and the tallest trees from these are about twenty feet high, and are vigorous and beautiful. They have not had a very good chance to show what they could do, for the swale in which they grow is sandy from the wash of the road, and very tightly packed and grassy, as it has not been disturbed for many years. Into the same dry, unfavorable soil we transplanted six young Chestnuts in 1888, but an insect dwarfs their early spring growth every year, and they do not like the salt east winds to which they are exposed. They are well rooted and healthy enough, but make slow progress skyward, and are not yet twenty-five feet high. Some Chestnut seedlings planted later promise to do better than the saplings, and are fast overtaking them, though rooted in the cold gravelly north side of the hill. Here, too, young Walnuts and Oaks are beginning to show among the Pines, and Gray Birches flourish in a race with the evergreens.

In one corner of the narrow front lawn which separates us by about ninety feet from the village street, flourishes a clump of five different kinds of Birches, and these, born to live on little, content themselves cheerfully with the scanty living sucked from the thin soil in which they grow. Of these five the common European Birch, Betula alba, with its white stem gleaming through the clustering curly branches which closely encircle it, is the tallest and most vigorous, and with its bright small leaves and numerous tassels is a pleasing feature in the group. Near it a Cut-leaved form of this Birch grows tall and spindling, with sparse foliage, casting dancing shadows on the grass. Its stem is of smooth and dazzling whiteness, and its pointed, deeply indentated leaves make a delicate tracery against the sky. In the foreground stands a Paper Birch, B. papyrifera, from Maine, with large shining leaves. Its bark has a warmer tone than that of the European Birches, and is flecked with dark spots. It grows more slowly, too, probably because it is only a scion which came up from the root of an apparently dead sapling that did not survive its first winter, and therefore has not the vigor of an original stem. It is dear to us, for it brings with it a suggestion of the northern woods where it grew, where its stately ancestors still furnish canoes to the Passamaquoddy Indians, and we watch with interest the changing hues of its rolling bark, and enjoy its gradual alteration from a dark sapling to a white trunk with the familiar dark gray diversifications. A young Yellow Birch, B. lutea, stands in the neighborhood, but whether from poor soil or its own habit has never advanced. Behind the group, and nearest the street, is a good-sized native Gray Birch, B. populifolia, which was a wayside bush preserved when we graded the knoll. This and a tiny White Ash, Fraxinus Americana, were the only green things upon the lawn when we began, and now the latter has grown into a stout, wide-spreading tree which robs everything in its neighborhood. While not so rapid a grower as some of the other trees, it bids fair to survive and overtop them all before many years. It struggles now with a transplanted Black Oak for mastery of the situation.

The greatest surprise of all on this small, crowded lawn is Catalpa speciosa, whose tropical foliage and great spires of enchanting bloom would seem to require far more sustaining food than it can possibly find on this slope. In a dry season it has a trick of dropping many of its first leaves when the second growth begins, but this year it has shed but few, owing to frequent rains. It spreads its wide arms and flutters its huge leaves, and is altogether the most foreign looking tree in the collection. Its top blew off in a gale three years ago, and this seemed to add to its spread. If it would only not wait until the middle of June to develop its leaves and begin to drop them early in September, no tree would be a more splendid inheritor of the earth. It is really a joy to behold in its perfection, it is so luxuriant and brave in its golden-green array. A photograph of the house taken in 1888 shows it standing up hard and bare against the sky. No vines nor shrubs link the foundations to the grassy terrace. Little sticks with plumy tops stand about at what seem wide and hopeless intervals, a few stems indicate the presence of future creepers, and the gravelled driveways look enormously out of proportion to the turfed spaces. The whole aspect was then hopelessly dreary and bleak but for the fine stretch of picturesque meadow.

A photograph taken in 1891 shows a pretty little group of trees already well started about the dwelling, and one made for me by a friend this month from the same point of view, only reveals the north gable end of the building which has been left unshaded for the sake of the prospect from its windows. All the rest of the house is hidden by foliage, draped in vines, or buried in shrubbery, so that only the chimneys are seen peering up amid the nodding tops of a grove of well-grown trees, which by another year will conceal even these altogether.

All this is the result of only nine years' growth, and goes to prove how well the careful planter is recompensed for his efforts.

Hingham, Mass. *Mary C Robbins.*

Plant Notes.

Romneya Coulteri.

FEW California plants are better known by repute to growers of hardy plants than Romneya Coulteri. Unfortunately, few in the east have had the opportunity to establish it, owing to the scarcity of proper material. The seeds offered by the dealers will hardly germinate in less than a year, and there are many contingencies from the planting of such seeds until their growth into plants strong enough to produce flowers. Roots have been only occasionally offered, mostly weak bits which have soon joined the majority, and the desire to grow this Poppywort has probably mostly abated. This is unfortunate, for it is a plant of most distinct habit, with beautiful flowers, and in my experience not difficult to establish and grow in the open in this latitude. Mr. Sturtevant kindly sent me some strong roots four years ago which were planted in a warm border at the south side of the house. During the three winters to which they have been exposed they have been protected simply by a mound of earth about a foot high and topped with ashes. This unsightly device is a very useful one for plants of which one is doubtful, or which it is desired to protect from quick thawing and freezing, the bane of hardy-plant culture in this changeable climate. A strong root has produced during these seasons a varying number of stems, this year twenty, although this number has been exceeded previously. The plants would spread by creeping roots if allowed to do so. The growth of the stems is about five feet, and they reach this length in May. They are always somewhat prostrate, the strongest growing only partly erect. As the smooth, pithy stems are brittle, the plant should

have protection from the wind. The leaves are persistent and lose their vitality with the storms in early winter, and as they show no signs of ripening previously it is fair to suppose that in a milder climate they would be of more than annual duration.

Though growing well each season it has not flowered with me until this year; the failure is evidently due to the production of too much thin wood. The flowering shoots this year are fewer and thicker and the plant evidently requires judicious thinning, and perhaps some fertilizer. The flowers are produced at the top of the stems, there being a crown-bud and two or three terminals on short, leafy stems. The pure white flowers, with six much-crimped petals, are from five to six inches across and have a hemispherical mass of golden stamens surrounding the ovary. The illustration on this page scarcely does justice to its beauty of form, for its petals are often contorted, and being of delicate texture and swayed by each breath of air there is always a beautiful play of life and light over it as the illumination changes. The petals seem peculiarly sensitive to light, opening wide in full sunlight and partly folding under duller rays. As each flower lasts three days this sensitiveness of the petal is useful, for late in the afternoon two of the inner petals fold up over the stamens and protect the pollen from dew or dampness. Though this plant does not flower profusely under ordinary conditions, it seems to be a good subject for the attentions of a deft cultivator, for there springs from each leaf-axil a short leafy stem which apparently might be converted into a flowering shoot with proper cultural skill.

CRESTED BEGONIAS.—Under the somewhat cumbersome, but descriptive name of Begonia grandiflora erecta cristata, Messrs. Vilmorin introduced last year a new type of tuberous Begonias. This new strain is said to have been obtained or selected by Messrs. Vallerand Freres, and is so far fixed that a fair proportion of seedlings is said to come true. The tubers and foliage are of the ordinary type of tuberous Begonias, now familiar to all gardeners. The distinct character of this new break appears in the flowers, which are in the usual colorings and single, but sometimes attached to all the petals, and sometimes to only either the inner or outer pair. A growth springs from the lower section, but not from the base of the petals. As this growth becomes free it takes on crested forms which are unique, being very irregular and decidedly attractive. The centres of the Single Tuberous Begonias have always been quite bald, or rather unattractive, and this new strain is a gain in beauty as well as an extremely interesting example of a floral metamorphosis, further phases of which may be expected. A single flower with growth of similar character was shown in an exhibition in the Grand Central Palace, in this city, some five years ago, by the Oasis Nursery Company, which, of course, is an illustration of the familiar fact that plant sports usually occur in several places at the same time. I have been expecting and hoping for some years that some one would select or secure a strain of Tuberous Begonias with brilliant leaves. It appears to be within the possibilities, for a plant here some years ago gave a promise of brilliant foliage by producing a stem with leaves of the richest colorings. Unfortunately tubers were very plentiful at that time, and the promising one was lost in the rabble.

Elizabeth, N. J. *J. N. Gerard.*

Fig. 46.—A Flower of Romneya Coulteri.—See page 352.

Cultural Department.

Hybridizing Sarracenias.

OWING to their odd shapes, and in some cases their beautifully marked leaves, the Sarracenias are much prized in European collections; indeed, more highly than they are here in their native country. During recent years some remarkably handsome hybrids have been raised, especially from the dwarf-growing species. The leaves of all the species are hollow; some resemble pitchers and others are trumpet-shaped. Five of the species are protected by a hood-like covering on the top; S. purpurea is unprotected. All of the species ensnare insects by an arrangement of hairs on the

inner portion of the tube. On the part nearest the orifice of the tube even the house-fly cannot obtain a foothold. The lower portion is covered with a multitude of hairs barely visible to the naked eye, and their ends are directed toward the bottom of the cavity. When an insect is once inside the chances are greatly against it regaining its liberty.

The flowers are quite as curiously formed as the leaves. The style expands at the summit into a structure exactly resembling an umbrella, which is composed of five divisions, and each division terminates with a small hooked stigma. The long petals, five in number, protrude from between the divisions of the style. The stamens are quite numerous. There are six species, all native of the Atlantic states. Five of these are found only south of Virginia; the other species, Sarracenia purpurea, ranges from Florida to the most northerly point in the New England states. S. psittacina is the least attractive of those, having small pitchers shaped like the head of a parrot. S. variolaris grows about ten inches high; the hood is more perfectly developed than in any of the other species. On the top of this hood are whitish, almost transparent, spots, the purpose of which has not been made clear. The color of the flower is yellow. The only other yellow-flowered species is S. flava, the most common of the southern species. It grows to a height of from one to three feet. The prevailing color is greenish yellow, with beautiful reddish brown markings on the under part of the hood and a little way down the tube. S. Drummondii, from a horticultural point of view, is the most attractive species. Like S. flava, it is an erect-growing species. Its beauty lies in the hood and the upper portion of the tube, which are white veined with dark purple, and a well-grown plant never fails to excite admiration. It grows in the almost impenetrable swamps of Florida. S rubra is a low-growing species with numerous narrow pitchers. The flowers are very sweet-scented and their odor somewhat resembles that of the common English Violet. The common or best-known species is S. purpurea; like those of S. psittacina, the pitchers are prostrate on the ground.

Among the numerous hybrid forms there are several with very large pitchers, such as Sarracenia Chelsonii, a hybrid between S. rubra and S. purpurea. This species colors up well, but is inferior in markings to S. purpurea as it is found growing in favorable situations about Wilmington, North Carolina. A cross between S. variolaris and S. purpurea, named S. Swaniana, has the broad form of the latter, while the light markings of S. variolaris are intensified. One of the handsomest hybrids is S. Formosa, between S. psittacina and S. variolaris. The form is nearly intermediate and the rich markings characteristic of S. variolaris are seen all over the upper part of the pitcher. All the species of Sarracenia intercross very readily under cultivation, and not a few natural hybrids have been found in the native wilds of these plants. If there are several plants of each species in a collection and each comes into bloom at the same time, which is an easy matter to accomplish by putting the backward ones into a little heat, there is no difficulty in raising an endless variety of hybrids. If some of the best of the hybrid forms already in cultivation were used as pollen parents the resulting seedlings would probably develop something entirely new. Two or three years ago I had the pleasure of raising many hundreds of seedlings, using all of the species as seed-bearers, and some of them along with already existing hybrids as pollen parents. So readily did they intercross that not a single flower failed to set seed. Of the hundreds of plants grown from the seed those having S. Drummondii or S. flava blood in them, no matter what they were crossed with, were always much inferior to the parents both in form and color. One set between S. Drummondii and S. crispata, the former being the seed-bearer, has more dark purple than there is in S. Drummondii. The most satisfactory results were obtained by using S. psittacina as a seed-bearer, taking the pollen of S. variolaris or S. purpurea, or even hybrids of these species. S. variolaris is also a good species to select as a seed-bearer. S. purpurea crossed with any of the species excepting S. Drummondii or S. flava gives some pleasing forms.

Although the raising of new varieties of Sarracenia through hybridizing is an easy matter, no small details should be neglected, or good results will not be secured. It is safest to keep the seed-bearing plants by themselves, and when the flowers are unfolding their petals, or just before the anthers shed their pollen, the stamens should be removed with a small pair of sharply-pointed scissors. The pollen to be used is in excellent condition when it falls on the concave surface of the expanded style. A little should be taken on the point of a camel's-hair brush, just enough to cover the five stigmas, which are situated on the under parts of the extremities of the divisions of the umbrella-shaped style. To prevent confusion a label should be tied to each fertilized flower, containing the names of the parents, the seed-bearer first. The seed will ripen in time to sow and have the seedlings about an inch and a half high before the approach of winter. A good mixture in which to sow them may be made up of two parts chopped sphagnum and one part charcoal, rough-grained sand and broken pots small enough to go through a quarter-inch sieve. This should be mixed thoroughly, firmly pressed, and the seeds covered but slightly. A pane of glass should be placed over the top of the seed-pans, and these should be stood in the shady part of a cool house. The two seed-leaves are about half an inch in length and quite narrow; the first true leaf reveals the genus to which they belong. At this stage they may be pricked off around the edge of a three-inch pot, putting eight or ten in a pot, in the soil already described, and they will pass the winter safely in these pots. When they begin to grow in spring they should be singled out into two-inch pots, using a little fibrous peat with the soil mixture.

Botanic Garden, Washington, D. C. *G. W. Oliver.*

Seasonable Notes.

LASIANDRA MACRANTHUM, perhaps better known under its old name of Pleroma macranthum, is a welcome addition to the few greenhouse plants in bloom at this season. The flowers, which are of a beautiful deep violet-purple color, are freely produced at the ends of the shoots in branchlets, and although the flowers only last about twenty-four hours, new ones open every day, and the flowering season continues through several weeks. From cuttings inserted in April we have now nice, bushy plants, in six-inch pots, but to grow this plant most successfully it requires to be kept two or three years and trained on a wall or tied to some wires on the side of a cool house. With a fair amount of root-space under such conditions it blooms for a long time and commands attention from all who see it. Lasiandras are of the easiest possible cultivation. They are not seen in many places, probably owing to the short-lived nature of their flowers and the fact that they have no value for cutting.

Caryopteris mastacanthus, which has been quite extensively advertised as a novelty during the last year, is really an old plant, having been introduced from China as long ago as 1844. I remember seeing the plant grow freely on a warm border in a garden near the Scotch border twenty years ago. It was then called Mastacanthus Sinensis. It made quite a neat little bush, but was not held in any particular esteem, and did not prove reliably hardy there, but a scattering of broken fern overhead and a mulching of manure at the root carried it through the winter safely. I saw well-grown small bushes of it last summer in the south of England, where it was said to be quite hardy. It is only occasionally seen even in England. When exhibited by Mr. Manning, of Reading, last year in Boston, it won a silver medal. It attracted much notice there and was described in some of the papers as a new introduction from China and called Blue Spiræa. A more correct name would be Blue Verbena, belonging as it does to the order of Verbenaceæ. I am unable to state whether C. mastacanthus is hardy in this climate, and it is probably not. It germinates freely, and from seeds sown about March 15th we now have good plants in bloom in six-inch pots. The flowers and plants are lavender-blue. In catalogues they are described as azure-blue and rich violet. The plant as we knew it two decades ago bore flowers of the lighter shade. There is a pure white form of Caryopteris which I have not yet found, but which is said to be an excellent companion to the blue one.

Chrysanthemum Golden Fleece is useful grown in a row by itself, or dotted here and there, as we grow it, in the perennial beds. Yellow flowers are perhaps too much in evidence at this season, with so many Helianthus, Heliopsis, Rudbeckias, Coreopsis, etc., but on account of its height (about two feet) and its persistent blooming qualities, this Chrysanthemum is worthy of a place in every flower border. It begins to flower with us about July 20th, and continues until cut down by frost. It proved perfectly hardy here during the past two winters, only a few half-decayed leaves being scattered over each clump. The flowers are extremely useful for cutting.

Taunton, Mass. *W. N. Craig.*

Work of the Season.

THE replanting of Carnations must now be attended to promptly, and the weight of opinion is in favor of having them under glass by the first or second week of September.

The plants are thus much more under control than if the operation is postponed. Care in lifting the plants is necessary to keep the roots entire, but a large ball of earth does not seem to be essential. Indeed, some growers go to the opposite extreme and shake off all the soil from the roots before replanting, and they claim that a better start is gained by this plan. When this is done rather more care is required in frequent syringing and ventilation until the plants become established in their new quarters. After the Carnations have begun to grow again but little syringing is needful, and during the dull and damp days of fall and winter no water from overhead is the safest rule. About five to six inches of soil on the bench is sufficient for Carnations, but this should be of good quality. Well-rotted sod is the best material, and of fertilizers, stable manure, wood-ashes and bone-dust are among the most satisfactory, and should be used in such proportions as are best adapted to the particular soil used.

Improved methods of staking and tying Carnations are still being discussed by the experts, many of whom have devised wire stakes of special form for this purpose, so as to support the plant neatly and admit plenty of light and air.

The frequent and unusually heavy summer rains in the eastern states have proved quite disastrous to Carnation-growers in some sections. One instance noted recently is that of a florist in Connecticut who planted out 16,000 Carnations in the spring, and at this time has only about 3,000 live plants, the remainder having been destroyed by wet weather.

Cyclamens that have been growing in frames during the summer will also be safer in the greenhouse from this time onward, for the damp and chilly nights of early autumn are likely to injure these useful plants. While in growth Cyclamens should never become very dry, yet an overplus of water also checks them.

Acacias, Azaleas and other hard-wooded greenhouse plants may remain out-of-doors for some time yet without injury; in fact, the early housing of plants of this character may induce a secondary growth, and to some extent interfere with their spring flowering.

Poinsettias should be brought under cover, for too much rain and chilly nights cause loss of roots, and consequently of the lower leaves, and frequently change a promising lot of plants into the unsightly specimens so often seen.

Lilium longiflorum and L. Harrisii should be left out in frames for the present unless they are intended for very early forcing. The 1st of October is a good time to transfer them to the greenhouse, and in favorable seasons I have sometimes left them out until November 1st, as a stronger root-growth is thus gained. The tops are in this way kept short-jointed and sturdy, and no staking is required unless the plants are packed for shipment.

Young Begonias for winter flowering, of which the Incarnata varieties, those of the Socotrana section (for example, B. Gloire de Sceaux and B. John Heal) and B. Digswelliana are among the most useful, may need another shift to give sufficient root-space to carry them through the season. Six-inch pots are a convenient size to use for well-grown and showy plants for conservatory decoration.

Show Pelargoniums are also admirable for the conservatory in spring and early summer, and while these plants may be kept outdoors to advantage during the summer months, it is not advisable to leave them out late. The heavy rains and cool nights affect these plants unfavorably, as they require but little water during fall and winter. A few strong young clumps of Arundo donax now lifted from the garden and potted up in large pots or tubs, will be found a useful addition to the conservatory plants during the winter; not only for their graceful habit and beauty of foliage, but the shoots may be cut and used effectively among cut flowers for filling large vases.

Holmesburg, Pa. *W. H. Taplin.*

Chrysanthemums and Rex Begonias.

FROM this time onward will be a critical period for Chrysanthemums. Plants in pots have now filled them with roots, and to keep the plants in good condition they must be fed, and judgment and experience are necessary in the proper application of nourishment. The misuse of a fertilizer may spoil a season's work, not taking into account the worry and disappointment. I know how easy it is to make mistakes and also the danger of repeating the error. The grower must feel his way, especially with a stimulant of whose strength he is uncertain. Drainage from the stable is safe, diluted to one-eighth strength, or until it has the color of weak tea. An application once each week is sufficient for the first month, but the cultivator must be guided by the foliage area. Change of diet is good for plants as well as for men, and at intervals sheep-manure water may be applied, and occasionally soot-water. These latter mixtures we make by putting the materials in a coarse bag and letting the strength leach through. If worms are troublesome, a little lime-water will drive them away and benefit the plants as well. As the season advances we may try a little of Albert's Horticultural Manure. Its action is quick for benefit as well as injury. A pound to fifty gallons of water is full strength, and a weaker solution would be safer. This manure gives a fine color to the foliage.

Rex Begonias are now in full beauty. While they are more or less evergreen they are benefited by a season of rest, but it is surprising how much hardship they will endure so long as the atmospheric conditions are suitable. Seedlings and broken parts of leaves frequently take root in gravel or under the greenhouse benches. A favorite place for them is the walls of artistic ferneries, with little else than decayed moss and charcoal to root in. Rex Begonias are an attractive feature in the grotto on the estate of the late F. L. Ames, at North Easton. On the Simpson place, at Saxonville, they are used in the same way, and their large glistening, often iridescent, obliquely cordate leaves stand in bold relief from the walls. Upon remarking to a friend how well they did on the dark side of his tropical plant house, and that the close atmosphere of such a place suited them, he directed me to the greenhouses belonging to Mr. J. D. Little, of Brookline, Massachusetts, and I there found the handsomest plants I have ever seen, growing under very different conditions. The plants were in an old-fashioned lean-to with front ventilators and heavy eaves, under the shade of which they were growing.

The typical Rex Begonia is characterized by a surface-growing rhizome, all the leaves being radical. Besides the type the collection includes a large number of hybrids, which, while maintaining the zonal character of the type, are more shrubby in habit, and often have deeply cut foliage. It is difficult to trace the parentage of many of these hybrids, although the blood of B. diadema and B. Olbia is plainly seen in many of them.

A description of some of the most striking varieties must include Lesondsii, dark and light green with silver spots and margin; Magnifica, deep bronze, with lighter green spots; Mrs. E. Bonner, hybrid Rex, shrubby, the leaves very much divided, silvery, with dark centre; Madame Treive, hybrid Rex, dark and light green shadings, with silver band; Fendelet, dark green, silver spotted, the raised midribs stained with red; Desfontaine, finely spotted, with band of silver, reddish hue; Annie Dorner, hybrid Rex, cut-leaved, dark and light green, spotted slightly; Bertha McGreggor, hybrid Rex, dark centre, with bands of silver and bronze; Mrs. Bonner, long-pointed, silvery green, dark edge, very fine. There are many other fine varieties, but these are the best.

Wellesley, Mass. *T. D. Hatfield.*

Antirrhinums.

THIS genus, though not extensive, contains several species all more or less hardy and mostly herbaceous. The majority are mainly useful for rock-work, but probably the best of all is the old-fashioned Snapdragon, Antirrhinum majus, and its numerous varieties. These easily lead all the other species in variation and brilliancy of coloring. Names have been given to some of the more distinct varieties, but few growers take the trouble of keeping them true to name.

These plants are often classed among hardy herbaceous plants, but I have never found them quite hardy in this section. When it is desirable to perpetuate some of the most distinct varieties I find it necessary to strike cuttings in September and winter them in cold frames, planting them out when the ground has become dry enough to work in spring. These plants bloom much earlier than those grown from seed unless the seed is sown in fall and the seedlings wintered in the same way. Under favorable conditions the plants usually begin to flower in May. They are useful as bedding plants and in the herbaceous border.

The readiest and most common method of obtaining plants is from seed, and one packet selected from a good strain will give all the variety desired. If sown in the greenhouse in March and grown with care they will flower by July and continue throughout the summer season. Though of the easiest culture, they will repay a little extra attention. Too often they are crowded together and receive little or no attention, with the result that their true character is not brought out and much of their beauty is lost. They should be planted in well-enriched ground and sufficient space allowed for the development of each plant, with proper attention to staking and tying. The handsome flower-spikes will fully repay this care.

Tarrytown, N. Y. *William Scott.*

Carex Japonica.—This pretty little Grass, with yellow and green striped foliage, proves useful in many ways, and small plants in four-inch pots, alternated along the outside of a table with plants of Isolepis gracilis, make a pretty arrangement. It is also attractive with Ferns in artistic basket-work, and for Fern cases. A few plants out-of-doors have stood the sun well, and it evidently will prove a good bedding-plant.

Clematis tubulosa.—This shrubby plant is one of the most striking features in the border at this season. It forms a neat, low, rounded bush just now, and is covered with small deep blue flowers. It is especially suitable for planting on hillsides and in a low shrubbery.

Kelway's Delphinium, Princess of Wales.—This is the first white perennial Larkspur I remember ever to have seen. Only the few deformed petals which form the shield for the stamens are dark-colored. The sepals are the showy part of the flower, and are often mistaken for petals.

Violas, or Tufted Pansies.—A bed of these yellow and blue flowered plants has interested many visitors, who mistake them for Pansies. But while the flowers of Pansies grow smaller as summer advances, Violas, which are summer-blooming, are then at their best. They are easily raised from seed sown in spring.

Wellesley, Mass. *T. D. H.*

Correspondence.

Notes from West Virginia.

To the Editor of Garden and Forest:

Sir,—Varieties of Hibiscus Syriacus, commonly called Althæas, are freely planted in this neighborhood. Although rather stiff-looking shrubs, they are useful at this season of the year, for they are in bloom throughout several weeks of late summer and early autumn, and, with the exception of some Hydrangeas and a few other plants, are the only shrubs now in flower. For want of other material, we often use Altheas for cut flowers for the house and also for the decoration of the little church in the village near which Rose Brake is situated. Generous branches cut from the shrubs are quite effective in large jars and vases. A recent arrangement of these flowers had several attractive features which I would like to describe. Jars for corners and fire-places were filled with sprays of the pale rose-colored single Althæas; others with the pure white variety which has deep maroon-red centres. Double and semi-double flesh and peach blossom-colored Althæas were also used in masses, each variety by itself. In smaller vases the light-toned and white kinds were combined with foliage of a Japanese Snowball and many tall heads of Wild Carrot to soften and give variety to the effect. The particular Snowball used is one that differs from all others of its kind that I have seen. It is planted upon a rock, and, possibly because of poor nourishment, has foliage of a uniform dull red color all summer long. It never shows a single green leaf, and, although we do not prize it especially for its effect in the shrubbery, we have found the peculiar tint of its foliage quite attractive in decorative arrangements. The contrast of its rich, subdued coloring with the cool-looking deep green of the Althæa foliage, starred with its handsome flowers, is excellent. In this arrangement care was taken to avoid a flat effect by using long sprays and by cutting the Wild Carrot with some long stems.

At another time large vases and bowls were filled with the full cream-colored heads of Hydrangea grandiflora mingled with sprays of the purple-leaved Barberry, which are not purple in reality, but a mingling of rich crimson, dark wine-color and tints of dull green. Sunflowers used alone, or with masses of the tropical-looking foliage of Aralia and Sumach, were found effective at another time. The largest flowers were used for corners in the hall and for fire-places, and the smaller ones for stands and mantel decoration.

Almost all of our garden flowers now in bloom, such as Dahlias, Marigolds, Zinnias, Phlox and China Asters, have a stiff aspect, which makes them less desirable for cut flowers than their wild neighbors of copse and field. Vines, however, whether wild or cultivated, are never stiff, and I wish here to call attention to the beauty of the common Trumpet Creeper when tastefully arranged, for house or church decoration. It is particularly effective for draping mantels, and ample lengths should be cut for this purpose with the large red trumpets naturally disposed amid the foliage. Fire-places and corners may be filled with it, a background of Asparagus with red berries giving lightness of effect. Balustrades may be wreathed with it, and it may be draped in graceful festoons from the walls. Wild Clematis, wild Grapevine with ripe grape-clusters, and the Virginia Creeper with its berries, are some other vines that can be often used with fine effect for decoration. One who searches through the shrubberies for material for this purpose finds many odd-looking carpels and capsules and berries, as well as hips and haws. Among a few of these are Elderberries with abundant foliage, which are suitable in some arrangements, and mingle well with yellow flowers, and the despised Golden Elder is not unattractive used in this manner. A branch of the rare Fontanesia phyllyræoides was found attractive, its singular light green seed-vessels depending from the twigs in pleasing contrast with its neat foliage of a darker shade. The black seeds of Pardanellus Chinensis contrasted with their yellow stems and capsules, may be used effectively sometimes in arrangements of wild flowers. The burnished purplish berries of Callicarpa purpurea give variety to bouquets of wild Asters; and branches cut from bushes of Rosa rugosa may be used by themselves, the handsome little red and orange colored apples hanging effectively among the rich green foliage.

These few suggestions may be useful to supplement the admirable articles upon the subject of interior decoration that have already appeared in Garden and Forest.

Rose Brake, W. Va. *Danske Dandridge.*

Notes from Germantown.

To the Editor of Garden and Forest:

Sir,—With reference to the Black Locust (see page 338), I have observed that the Locust borer is a pest of this tree and that the growing of it for profit is not always satisfactory. On a recent journey from Carlisle to Gettysburg I saw a large number of Black Locusts, and in many cases the borer had nearly destroyed them. In some instances the trees had been set out along farm lanes and dividing lines, and I observed some rows in which every tree was partly dead. Usually it was the upper half which was injured.

English Hollies do not utterly lack in hardiness if they are surrounded by other evergreen plants while young, and are being planted in this vicinity more than formerly. The Japanese species, Ilex crenata, is more hardy than English Holly and has small myrtle-like foliage. Of course, our native Holly is entirely hardy about Philadelphia.

The long loose clusters of fruit of the White Fringe-tree, Chionanthus Virginica, are ornamental now. The sterile flowers and the fruits are borne on separate individuals. Sterile plants are sometimes grafted with the fruit-bearing sort, but the grafts do not take readily. Those who have sterile plants may take satisfaction in knowing that the flowers on these are more beautiful than those of the fruitful plants.

The fruit-pods of Euonymus Americanus are showy now. The pods are purplish red and warty-looking. The resemblance of this fruit to that of the Strawberry tree of Europe, Arbutus Unedo, is not altogether a fancied one, and a few years ago tree-agents sold any sort of Euonymus for Strawberry trees. When quite ripe the fruit of Arbutus Unedo is excellent for eating. E. radicans, though mostly used as a vine or for an edging to a bed, is an attractive pyramidal object when tied to a stake for a year or two. These plants are sometimes used in cemetery lots, and when trained in this way they closely resemble a Juniper in form, and are also evergreen.

Althæas have not been as beautiful in many years as they are now, the frequent rains having suited them perfectly. These shrubs could hardly be spared at this season, both because of the number of pleasing varieties and the scarcity of other shrubs in flower at this time. The bushes should be severely pruned in their dormant season to bear the best flowers.

Our wild Bearberry, Arctostaphylos Uva-ursi, is not found in many collections. It needs a sandy soil and thrives well in almost pure sand.

Germantown, Pa. *Joseph Meehan.*

Some Utah Shade-trees.

To the Editor of Garden and Forest:

Sir,—The deciduous trees planted in Utah for shade, either in the cities or on the farms, consist almost entirely of three kinds, the Lombardy Poplar, the Black Locust and the Box Elder, although the Carolina and Bolle Poplars are used to some extent and are gaining in popularity. The Lombardy Poplar is by far the most common and is planted, even by men who do not admire its characteristic appearance, because it seems especially adapted to the climate, grows very rapidly and will, therefore, soonest change the somewhat monotonous appear-

ance of most of the valley lands and supply the much-needed shade. It is also probable that its abundance at all the nurseries may have had some influence with those who take what is offered them in the way of trees, without much regard as to its desirability. But whatever the causes, the fact remains that all over the state, wherever trees will grow at all, rows of tall Lombardy Poplars are seen marking the boundaries of farms or the courses of irrigation ditches, a characteristic feature of every Utah landscape. As might be expected from their abundance, the cotton becomes a decided nuisance when it falls, especially in the cities; so much so that in most of the larger cities ordinances have been passed requiring the removal of all Poplars with pistillate flowers. The thrifty nurseryman, taking advantage of this, soon placed upon the market Poplar-trees which bore only staminate flowers, and as a proof of this pointed out to the intending purchaser rows of older Poplars from which the pistillate specimens had been carefully removed.

The Black Locust stands next to the Lombardy Poplar in point of numbers, but does not seem so well adapted to the climate. Borers invade it to some extent, and the older specimens soon present a rather ragged appearance from the large number of dead twigs upon them. Yet the trees will endure many hardships, and are, perhaps, better able to withstand drought than the Lombardy Poplar. I have seen some specimens about old ranch buildings and in similar situations which could at no time have received more moisture than is afforded by the scant rainfall of that region, and yet, although they were but little taller than the Sage Brush which surrounded them, they appeared to be perfectly healthy and had made a considerable growth in thickness.

One accustomed to the Box Elder as it grows through central United States would scarcely recognize the Utah specimens, so tall and straight do they grow. Many of them closely resemble the Soft Maple in general outline, and that is likely to be one's thought on seeing them for the first time in their winter condition. This change in appearance I should ascribe to the fact that the climate of Utah is singularly free from winds, with the exception of those from the cañons, and that the trees are usually planted along the streets of the towns, or if on the farms along the irrigation ditches. As in all Utah cities both sides of each street are provided with small streams of water, it will be seen that in either case the conditions are especially favorable for growth.

The grounds of the Mormon Temple at Salt Lake City are adorned by some very fine specimens of Ailanthus-trees, but their beauty has been greatly diminished by the ruthless manner in which the tops have been mutilated. Just what the object was in cutting back the tops it would be hard to say, for they are not unusually tall and do not obstruct the view of the temple. But they have twice been cut back, the first time evidently almost to straight poles, and the second time hardly less severely. This treatment has materially injured the appearance of the heads, but the boles are very handsome.

That most beautiful of all shade-trees, the American White Elm, is now being planted in considerable numbers in the cities, and is a great relief from the Locusts and Poplars so monotonously prevalent in the older plantings.

Tescot, Kansas. *F. C. Sears.*

Recent Publications.

Circular No. 12, issued by the Division of Botany of the United States Department of Agriculture, describes the conditions of successful cultivation of the Camphor-tree, Cinnamomum camphora, and the uses of the tree and its products, and contains other interesting particulars. This broad-leaved evergreen is related to the Red Bay and to the Sassafras in the United States, and in general habit resembles the Basswood. In the coast countries of eastern Asia it attains a height of from sixty to one hundred feet and a trunk measurement of from twenty to forty inches in diameter. In Japan the law requires that a new tree be set out for every one cut. It is stated that the northern limits in the United States where this tree has been grown successfully out-of-doors are Charleston and Summerville, in South Carolina; Augusta, Georgia, and Oakland, California. In the southern cities named the trees have withstood a temperature of fifteen degrees, Fahrenheit, but they were protected by surrounding trees and buildings. At Mobile, Alabama, they have grown and fruited in protected situations, while in exposed places they have been repeatedly destroyed by frosts. They will grow in almost any soil that is not too wet, but do best on a well-drained sandy or loamy soil, and respond to fertilizers. While of comparatively slow growth on sterile soil, the trees grow very rapidly under favorable conditions. An exceptional instance is recorded of a Camphor-tree in Italy which in eight years from the seed measured one foot in diameter and ninety feet in height. Trunks six to eight inches in diameter at the base and thirty feet in height may be expected in trees ten years from the seed under favorable conditions. Besides the familiar use of camphor-gum to protect furs and woolens against insects, this gum is used extensively in medicine. Camphor-oil, which is somewhat similar to turpentine, in Japan enters into lacquer-work, and it is also used in the manufacture of toilet soaps. The yellow wood is of close grain and is susceptible to polish, taking a satin-like finish; this is particularly valuable in cabinet-work, especially for drawers, chests and cupboards, being proof against insects. The tree produces an abundance of berry-like fruits, which in China and Japan are used to make a kind of tallow; these are also a favorite food of chickens and birds. Besides these commercial uses, the tree has value for ornamental planting, and has been extensively introduced into southern Europe and South America for this purpose. For successful cultivation the minimum temperature must not be lower than twenty degrees, Fahrenheit, and this interesting circular suggests that it is hoped by continued selection of seeds from the most hardy trees plants may be bred up to endure more cold. Camphor of good quality has been produced in Florida from the leaves and twigs of trees less than twenty years old, one pound of crude gum being obtained from seventy-seven pounds of leaves and twigs. One-third of the leaves and young shoots may be removed at one time without materially checking the growth of the tree. The older and larger roots yield the largest proportion of camphor; the trunk, limbs, twigs and leaves contain successively a decreasing proportion. Present methods of distillation are here described and improvements suggested.

Within the past ten years there has been an increase in importations of refined camphor in the United States and a decrease in importations of the crude product, notwithstanding the former is dutiable while the latter is admitted free. Improved methods of refining and packing in Japan and a reduced tariff rate account for this change. In 1887 there were imported 2,873,184 pounds of crude camphor, valued at $352,861, and in 1896 but 943,205 pounds, valued at $328,457. In 1887 only 307 pounds of refined camphor, valued at $45, came into this country, while in 1896 153,912 pounds were admitted, worth $68,785. These figures show that the price of the refined and the unrefined product has increased three-fold in this period, and that the consumption of camphor in this country, as measured by importations, has been decreasing. This decrease is attributed to exhaustion of the supply of available Camphor-trees near the shipping ports, governmental restrictions on the trade in camphor in Formosa and taxes on the exportation, hostilities and wanton destruction of camphor stills by the natives in Formosa, disturbances in the camphor-producing district of China, the China-Japan war, and attempts by speculators to corner the market. The increase in the price of camphor has led to the introduction of substitutes, and camphor has been manufactured artificially at a cost which leaves a margin of profit at present prices. The conclusion is that if the production of camphor from trees is to be carried on with profit in this country and the industry increased to any considerable extent, the price of camphor must be reduced to compete with the prices of substitutes now taking its place.

Notes.

Mr. R. A. Rolfe notes in *The Orchid Review* the discovery of a natural hybrid between Orchis maculata and Habenaria bifolia. This interesting addition to the British flora was

found on a moor six hundred feet above the sea-level, near Glenalmond, Perth. A hybrid between the same genera was found in France in 1891.

Florida papers state that photographs recently made for exhibition show twenty-eight pineapples, estimated to weigh about 400 pounds, growing on a plot of ground ten feet square, near Orlando, in that state.

The receipts of bananas at this port during the month of August amounted to 420,100 bunches, and exceeded the business of the same month in last year by 138,500 bunches.

In the Forestry Building at the Tennessee Centennial Exhibition forty-five different kinds of hard wood are shown as the product of a single farm in Montgomery County, Tennessee.

The peach crop of Missouri is immense this year, and a conservative estimate of the yield in five of the great fruit-growing counties in the south-western part of the state is 412,500 bushels. The output of a single farm of 1,600 acres in Oregon County this season is 15,000 bushels.

A Penn Yan correspondent of the *Fruit Trade Journal*, writing from the grape region about Lake Keuka, New York, reports the grape crop to be two weeks later than last year. There is promise of a two-thirds yield of Delawares and a large crop of Catawbas if the frost holds off, while Concords will not give the average yield.

The American Fruit-growers' Union will hold a convention in Nashville, Tenn., on September 8th to 10th. It is proposed during its sessions to form an association comprising the fruit and vegetable growers of the entire country, particularly southern growers. The entire north and west is dependent upon the extreme south for early vegetables up to May 15th.

One of the most famous trees in Connecticut is the so-called Poetry Oak which stands in front of the meeting-house at Pachaug. The agricultural papers of half a century ago commented upon its size, and a more recent writer says "it has heard fifty-two sermons a year for 177 years and political speeches from the settlement of the country down to the present day," and reports that its trunk is nearly twenty feet in circumference while the spread of its branches exceeds 240 feet.

The so-called Panama hats, beautifully woven and very expensive, come in large part from Central America. But about five million hats of a similar kind, although of different grades, are annually exported from Spain, where in the Andalusian district, they are manufactured from the leaves of a species of Palm which there grows almost wild. They are made entirely by hand, after the methods pursued for centuries, and the industry is said to support more than ten thousand persons, mainly women and children. The finest kinds can be made only by skilled operatives, who consume a week in producing two hats.

A new hybrid Aristolochia, probably the first of which there is record, is figured and described in a recent issue of *The Gardeners' Chronicle*. The parents, A. Brasiliensis and A. elegans, belong to two very distinct sections of the genus, and the upper lip of the hybrid is described as intermediate in shape between that feature in the parents, slightly crumpled, cream-colored, thickly bestrewn with arborescent purplish spots. The throat of the perianth is clear yellow, as in A. elegans, with numerous purplish radiating veins. This interesting and showy novelty is an acquisition to the stove climbers, and was originated by Mr. J. M. Bell, gardener to Rev. Canon Prettyman, Louth.

A bulletin on vegetables just published by the West Virginia Experiment Station reports that the same quantity of field beans planted in drills will produce twice as much as if planted in hills. Where but a few plants of Lima beans are grown for family use it is recommended to plant the seeds in inverted sods in a hot-bed, from April 1st to 10th, as the increase will more than repay the trouble. Bush Lima beans are compared favorably with the pole sorts and said to be worthy of taking their place. The saving of poles and training would, of course, be a clear gain. The bush sorts are said to require less space for development, so that a larger yield per acre may be counted upon, particularly toward the northern limit of the successful cultivation of the pole Limas. The limit of the successful cultivation of bush Limas is said to be much farther north than that of the pole Limas.

In 1895 four public playgrounds for children were opened by the Philadelphia Board of Education. Eight more were added in 1896, and ten additional ones this summer. The cost of equipping the twenty-two which are thus doing service was only $3,000, while the attendance at each averages from 300 to 600 persons a day, according to its situation in a more or less densely crowded quarter of the city. Of course, the majority of the frequenters of these playgrounds are children. But poor mothers often pass a part of the day within them, while others leave their children, including even babies in carriages, in the care of the janitor and teacher. Large sand-piles form the chief attraction, but in some grounds swings, seesaws, toys and games of various kinds are supplied, and as much shade as possible is always furnished.

Among eighteen papers included in the proceedings of the Society for the Promotion of Agricultural Science, at its annual meeting held in Detroit last month, were An Experience in Managing a Weed Garden, by Professor W. J. Beal; Notes on Bean and Pea Tubercles, by Professor B. D. Halsted; The Annual Growth of Forest Trees, by Professor W. R. Lazenby; Objects and Methods of Soil Analysis, by Professor E. W. Hilgard; The Promotion of Agricultural Science, by Professor I. P. Roberts, and Further Observations in Varieties of Timothy, by Professor A. D. Hopkins. Professor Halsted, of the New Jersey Experiment Station, was elected president for the coming year, and Professor C. S. Plumb, of Purdue University, was made secretary and treasurer. This society, founded in Boston nearly twenty years ago, has for its object the advancement of progressive agriculture. The membership list is increased only by invitation to scientific workers and is limited to one hundred. The next meeting will be held in Boston in August, 1898, in connection with the fiftieth anniversary of the American Association for the Advancement of Science.

Our native Squaw-root, or Cancer-root, Conopholis Americana, is illustrated and described in *Meehan's Monthly* for September. This singular and somewhat uncommon plant is best known in its mature condition, when the small clusters of blackened spikes resemble slender old Fir-cones. While widely distributed over the eastern and central portions of the United States, it is nowhere common, and about Philadelphia is stated to be the most rarely found in a list of rare plants. It is in bloom in that vicinity toward the close of April, though in a late season its curious flowers do not appear until the beginning of June. The parasitic tubers have a preference for the roots of Oaks, but individual plants and groups are sometimes supported by a few straggling roots which penetrate from three to six inches of peaty bank. The plant is elusive because it is often unable to pierce through the heavy crust of decayed leaves. The flowers, which develop and perfect themselves in four to six days, rarely, if ever, produce fruitful seed, and the plant perpetuates itself mainly from eyes in its thickened corm-like tuber. The resemblance to its near relation, the Beech-drops, also known as Cancer-root, Epiphegus Virginiana, is noted in several particulars.

In an editorial article recently published in the Boston *Transcript* it is stated that the action of New Hampshire toward the prevention of destructive tree-cutting is most closely watched. Not, perhaps, because the denudation is most pronounced there, but because from its attractiveness as a summer resort the losses to its forests are the more evident to the traveler. No one who traverses the wild road leading up to the Old Man of the Mountain can help bewailing the short-sighted policy that is denuding these hillsides and valleys. Here the woods are so deep and so extensive that deer may occasionally be seen crossing the public roads. But for five miles up the valley there is the sawdust trail of the woodcutter, who mows the forest from the mountain side and chokes the rivers with his refuse. And this is the condition of New Hampshire's choicest retreat, where as much land as possible has been retained by careful and intelligent owners, who realize that when the forests are gone New Hampshire's attractions for summer tourists will be gone also. Three-quarters of the cutting in New Hampshire is of that sweeping kind that leaves not even a sapling on the denuded area, but the Legislature has not yet given signs by its acts or its appropriations of serious intention to stop the waste. The present course cannot fail to rob the Granite State of its forests, and will make it impossible to replace them by other forests. The remedy will probably come in protests from persons interested in the summer resorts. When they realize that the income derived by the state from its visitors is quite equal to that derived from the cutting of lumber (and this was stated to be true a number of years ago), they will see to it that their interests are not imperilled further by reckless lumbering.